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REMARKS

The specification is amended herein to correct the reference 5 *blocks* in FIG. 2, as pointed out by the Examiner.

Claims 7-10 were objected to because, according to the Examiner, some elements are not specifically mentioned in the specification and therefore, "it is unclear as to what is being claimed." Applicant respectfully traverses.

The Examiner asserts that the notion of "time slots having a first specified ordinal position in a block" is not mentioned in the specification. That may be true with respect to the detailed description, but it is not true with respect to the specification, since the claims form a part of the specification. More importantly, there is no requirement that the very same words and phrases that are found in the claims also must be found in the other parts of the specification. The *sine qua non* for meeting the 35 USC 112, second paragraph requirement is no ambiguity, and applicant respectfully submits that the claims are clear, plainly understandable, and unambiguous.

The common dictionary definition of the word "ordinal" is "being of a specified position in a numbered series" (www.dictionary.com). Therefore, time slots having a first specified ordinal position are time slots that have an associated number that designates their position in a sequence. The specification, at top of page 3, in connection with FIG. 2, illustrates the point by mentioning that blocks have time slots, and that one such slot is slot 2. That is, the ordinal position of that slot is No. 2 in a sequence of slots. Therefore, when claim 7 specifies that slots that carry voice signals in a channel have a particular ordinal position in the sequence of slots of a block, that position being the "first specified" position, that ***simply and clearly*** means that the claim introduces a limitation that each block of a frame contains a slot for carrying packets of a channel, and that slot has a given position in the sequence of time slots in a block.

The only issue that the Examiner might raise is that an interpretation of the claim's language defines an invention that is not disclosed in a manner that complies with the first paragraph of 35 USC 112; but the Examiner has not raised such an issue.

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As for claim 8, it is amended herein to more clearly define the invention and, as amended, is believed to be in full compliance with 35 USC 112. Claims 9 and 10 are amended to correct a minor typographical error. The amendment to claim 8 rectifies the antecedence basis for the "subset" of blocks that is found in claims 9 and 10 and, consequently, claims 9 and 10 are now in compliance with 35 USC 112. As an aside, it is noted that the notion of a "subset of blocks" needs no explanation, that to the extent that a teaching of a subset of blocks is required, one is found in the claims themselves, and that in addition, the notion of less than all blocks is quite clearly found in the penultimate paragraph of page 6.

With respect to claim 22, the Examiner objects to the claim because, allegedly, there is no antecedent basis for "destination." Claim 22 depends on claim 21, and claim 21 depends on claim 1. Claim 1 specifies a destination module in line 2 of the preamble. Therefore, it is respectfully submitted that claim 22 is proper.

Claims 1-7, and 16-25 were rejected under 35 USC 102 as being anticipated by Jamal, US Patent 5,754,537. Applicant respectfully traverses.

Jamal describes a method and a system improving performance of a system where during silence intervals of an established communication session, the mobile unit's transmitter is allowed to transmit background noise. The environment in which Jamal operates is TDMA that comprises frames of time slots. When a mobile station wishes to transmit, it sends out an access request over a specified time slot that is devoted to signaling. If (non-signaling) time slots are available, the request is granted. As stated in col. 6, lines 64-65, "the system transmits an access granted message assigning available time slots to the mobile station associated with the request and creates a TDMA channel comprising the assigned time slots." If time slots are not available, then access is denied with an acknowledgement message. When an acknowledgement message is received, the mobile waits to receive an access grant at a later time. When an acknowledgment message is not received, the mobile waits a predetermined period of time, and retransmits the access request.

In this environment, the Jamal solution is for the mobile station to either transmit speech packets, or background noise packets. When a mobile station makes a request, it specifies (a) the kind of packets that it wishes to transmit, and (b) the number

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of time slots of a frame that it wishes to have assigned (see, for example, FIG. 3A, particularly subslot TS1 in slot T2 of frame 1, where mobile unit M1 requests assignment of two slots for speech packets). Once slots are assigned to a speech burst, they are held by the established logical channel until the speech burst ends (see col. 8, lines 20-21). Applicants found no explicit teaching as to background noise assignments, but since the access request is removed from the base station's queue of pending requests once an access granting message is sent out, that implies that once slots are assigned to a background noise burst, the logical channel that was established is also held until the burst ends. Slots in a frame are assigned without apparent rhyme or reason, except, of course, that a slot to be assigned to a logical channel (be it speech or background noise) must be unassigned to some other mobile station.

Before proceeding in the detailed comparison of applicant's claims to the Jamal teachings, it must be noted that the Jamal signal structure comprises frames, a number of time slots in each frame, and a number of subslots at a predetermined time slot. Claim 1 specifies a channel in which a station sends packets that carry voice. Since a subslot does not carry speech information, the "channel" of claim 1 may correspond to a Jamal time slot, or it can correspond to a Jamal frame. The Examiner has not specified which correspondence the Examiner asserts. However, as demonstrated below, the particular choice for this correspondence is not important.

As for the claim 1 specifics, the first step specified is a step of "first ascertaining whether said station is in a silence period." Focusing on the word "ascertaining," it is noted that the word means "to discover with certainty, as through examination or experimentation" (www.dictionary.com). That is not something that the base station of Jamal does. The base station is simply provided with a request for access. The station performs no ascertaining. The request tells the base station whether the request is for a speech burst, or a background noise burst, and the base station simply responds to the request. Next, focusing on the word "whether," applicant notes that when a mobile station, or a base station, operates in one manner *when* there is a silence period, and in another way *when* there is a speech period, that does NOT constitute a step of ascertaining ***whether*** there is a silence of a speech period. The difference between the two is same as the difference between the programming sequence:

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if speech then ....

if silence then ....

which corresponds to the "when" mode, and the programming sequence

if speech then ....

else ....

which corresponds to the "whether" mode. In the case at hand, the base station responds in one manner when an access request is received for a speech burst (placing it in a high priority queue), and in another manner when an access request is received for a background noise burst (placing it in a low priority queue). Such action does not correspond to a step of ascertaining whether a station is in a silence period.

Indeed, the Examiner effectively admits this fact by stating "the step [of reducing bandwidth] inherently implies that there is a means to determine when a mobile station enters a silent period." Factually, this statement is not fully correct (for no such means is taught or is actually required), but the Examiner's use of the term "inherently" does demonstrate that the Examiner is unable to point to an actual, or at least explicit, step of ascertaining whether a station enters a silence period.

The next step of claim 1 specifies a step of "when said step of first ascertaining concludes that said station is in a silence period, sending a control message to said station that reduces bandwidth of said channel." The Examiner asserts that Jamal includes a step of "sending a control message to reduce the bandwidth of a channel when it is determined a speech burst is complete, meaning the mobile station is a silent period." Respectfully, applicant disagrees.

First, as indicated above, the base station does not execute a step of ascertaining whether the station is in a silence period. Therefore, the second step of claim 1 cannot find a correspondence in the Jamal reference.

Second, the Jamal base station does NOT send a control messages "that reduces bandwidth." Rather, it sends a grant, or an acknowledgement message, and that is it. If the bandwidth used by a mobile station is reduced, it is in consequence of the rate at which access requests are sent by the mobile station to the base station, and not in consequence of anything that the base station does. Furthermore, the control messages that grant access to time slots do so without regard to what the previously assigned

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bandwidth. Hence, it cannot be a control message **to reduce, or that reduces,** bandwidth.

Third, the control message (the granting of access) is not in response to "concluding" of anything, other than that a request has arrived. It is certainly not in response to concluding that a silence period has commenced.

Fourth, when a speech burst is complete that does not mean that a silent period has commenced. Since the rate at which a packet is transmitted is much higher than the rate at which a packet is generated, it is possible to have fewer time slots than the number of active mobile stations. Each station accumulates a number of packets into a grouping (within a predetermined time delay parameter) and sends out the grouping of packets in a burst of -- provided it is granted access. When the burst completes, another mobile unit is given access to the same channel while another grouping of packets is accumulated. Thus, when a burst completes it only means that all of the packets in the grouping have been transmitted; not that the station entered a silence period.

In short, both the first and the second steps of claim 1 are not taught or suggested by the Jamal reference.

The third step of claim 1 specifies a "second ascertaining whether said station is in an active period." For the reasons expressed in connection with the step of "first ascertaining," applicant respectfully submits that the third step of claim 1 is also not taught by Jamal.

Presumably, the effect of the Jamal method, *on the average*, is the same as that of the method defined by claim 1. That is, during a speech period in the Jamal arrangement every so often a speech burst is granted access, when a request is made and capacity is available. The same is true during silence periods. However, during a speech period the frequency of the requests is presumably higher than the frequency of requests during silence intervals (otherwise, there would be no benefits for distinguishing between silence and non-silence). If the above presumption is correct, it would follow that, on the average, the bandwidth that is employed by the mobile station during a speech interval is greater than during a silence interval.

The important points to note, however, are that:

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(1) the bandwidths employed are controlled by the mobile station and not by the base station (which is merely responsive),

(2) consequently there are no control signals from the base station to reduce, or increase, the bandwidth,

(3) certainly there are no control signal from the base station to reduce, or increase, the bandwidth in response to any ascertainment by the base station of a silence of a speech interval,

(4) the bandwidths come in spurts (with capacity at times being given to other mobile stations), and

(5) it is only *on the average* that the bandwidths during speech are greater than during silence.

For these reasons, it is respectfully submitted that claim 1 is not anticipated by the Jamal reference.

Since claim 1 is not anticipated by the Jamal reference, it follows that all claims that depend on claim 1 are also not anticipated by the Jamal reference. Additionally, at least some of the dependent claims contain one or more limitations that make the claim independently patentable over the Jamal reference.

For example, claim 4 specifies that a "station communicates its packets in time slots assigned by said control mode that recur at a given rate." The Examiner cited col. 6, lines 9-27 for the proposition that Jamal teaches "time slots occurring at a given rate." Applicant respectfully disagrees. The cited passage teaches no such thing. In fact, the cited passage teaches the converse, by stating that "[T]he number of time slots in each TDMA channel varies." That is, when a request is made, whatever slots are available are subject to being assigned to satisfy the request. Thus, for example, in connection with Jamal's FIG. 3A, mobile unit 3 was granted time slots 3 and 6 in the same frame, simply because these particular slots were available. Had other slots been available, for example slots 1 and 6, then those slots would have been assigned. Therefore, whether the slots over which a given station sends information occur at a given rate is not a concern of the base station, and it is not a limitation imposed by the base station. The only concern is whether, and where (in the frame), there exists an available slot (or slots) that can be assigned. In contradistinction, the claim 4 imposes

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the limitation that the base station that executes the defined method requires the station to communicate "its packets in time slots assigned by said control node that recur at a given rate."

Moreover, the Jamal base station does not decide on a rate in any sense other than an instantaneous assignment for the transmission of a burst. Once a burst is completed, the next time the same mobile station communicates information is a function of (a) when is the next time that the station request access, and (b) what is the load on the network (imposed by other mobile stations). Both of these factors lead to the conclusion that, in the Jamal reference, a station is not limited to communicate "its packets in time slots assigned by said control node that recur at a given rate."

As for claim 5, it depends on claim 4. Additionally, the remarks above regarding the fact that the base station in the Jamal reference does not reduce bandwidth apply to claim 5.

As for claim 7, it specifies that the assigned time slots have a specified ordinal position in a block, where a number of blocks form a frame. In contradistinction, the Jamal reference has frames, and has time slots, but does not have blocks. Therefore, it cannot assign a time slot having a specified ordinal position in a *block*. Moreover, the time slots (of the frame) to which a mobile station is assigned by the Jamal reference depend on the availability of slots each time a new burst requests access, and there is no assurance of having a given time slot (i.e., a time slot having a particular ordinal position) being so assigned.

Claim 17 specifies that steps (a) and (b) of claim 1 are carried out when the control node (e.g., the base station) "believes said station to be active and operating at full bandwidth." The Examiner asserts that

> In the bandwidth controlling method of Jamal, the steps of determining when a silent period is entered and reducing the bandwidth of the communication channel only occur when the mobile stations are currently in operating at full bandwidth.

In support of this assertion, the Examiner cites col. 7, lines 46 to col. 9, line 60, and FIG. 3 (A and B). Applicant respectfully disagrees. The cited passage describes FIG. 3, but neither this figure, nor the cited associated text, teaches what the Examiner asserts. It does not teach controlling bandwidth (though different bandwidth usage

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results). It also does not make any determinations regarding silent period commencement, or speech period commencement, and whatever signals the base station sends, they are always strictly in response to requests sent over time slot 2 (in the subslots). In short, it is applicant's position that the teachings that the Examiner attributes to Jamal are not taught at all by Jamal (in the cited text and FIG 3, or elsewhere).

Referring to the actual language of claim 17, it is noted that the action specified in claim 17 is "when said control node believes...." This limitation imposes some action, for example, a test, which the control node must execute in order to form *belief* that the claim specifies. No such action or test is taught by the reference. Moreover, claim 17 specifies that the control node ascertains (and thus "believes") the station "to be active and operating at full bandwidth." Nothing like that occurs at the Jamal base station. It does not know, or care, at what bandwidth the mobile station is operating. It merely responds to requests, and satisfies them when it can. A mobile station might request one time slot, or two time slots, or any other number of time slots. The base station does not care. Whatever actions the base station takes, it takes them independently of the bandwidth that a mobile station employs. The Jamal base station only serves as a throttle. It makes sure that a station does not take grabs too much bandwidth. Furthermore, as indicated above in connection with claim 1, steps (a) and (b) are not even executed by the Jamal base station.

As for claims 18 and 19, applicant respectfully submits that the rationales for holding claim 17 not anticipated by the Jamal reference also hold (either identically, or in a corresponding manner) for claims 18 and 19 and, therefore, claims 18 and 19 are believed to be also patentable over the Jamal reference.

Regarding claims 20 and 23, the Examiner asserts that Jamal

> inherently discloses steps of determining when a mobile station is entering a sleep period and when a mobile station is entering an active period. This step must include measuring the speech data to make these determinations.

Applicant believe that the Examiner is incorrect. First, a determination that a mobile station is entering a "sleep period" or a silence interval does not have to be made by measuring the speech data. There may be other ways of arriving at such a

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determination. Therefore, even if Jamal were making the determination that the Examiner is asserting, it still would leave claims 20 and 23 not anticipated because -- effectively by the Examiner's own admission -- there is no teaching of a measuring of speech data, as the claim specifies. Second, Jamal does teach a determination of when a mobile station is entering a "sleep period." This fact is also effectively admitted by the Examiner, through the Examiner's use of the term "inherently." Third, Jamal does not "inherently" disclose such steps, because nothing in the Jamal method and system requires such a determination. As indicated above, the operation of the Jamal system has the effect of different bandwidth usage -- on the average -- when there is speech and when there is no speech, or so it is presumed, but that result is arrived at through a completely different methodology.

As for claims 21 and 24, it specifies that the station "informs" the control node that the station has entered the silence period, or active period, respectively. No such message is ever sent by the mobile station in the Jamal reference. The messages that a mobile station sends are requests, but a request to be granted permission to send a background noise burst, or a speech burst, which repeats quite often, is not a statement that the station has entered a silence period.

Claim 22 specifies that the control node receives the message from a station via the destination. No such teaching is found in Jamal, and the Examiner has not pointed to any.

As for claim 23, the Examiner merely assumes that Jamal inherently includes a means for measuring power, but this assumption is not supported by anything stated in Jamal, and is not inherently required. Hence, it cannot be assumed and, therefore, claim 23 is not anticipated by Jamal.

Claim 25 specifies that the control node receives a message that the station is "about to enter said active period." No such notion is found anywhere in the Jamal reference, and the text and FIGS. that the Examiner cited do not teach or suggest it.

Claims 8-15 were rejected under 35 USC 103 as being unpatentable over Jamal in view of Söllner et al, US Patent 5,506,837. Applicant respectfully traverses.

The Examiner focused first on claims 11 and 12, then on claim 13, then on claims 14 and 15, all relative to the Jamal reference only, and then focused on claims 8-

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16 with the additional citation of the Söllner reference. The following addresses the claims in the same order.

> Addressing claims 11 and 12, the Examiner asserts that Jamal teaches that the reduced bandwidth and freed capacity of the bandwidth controlling method is related to a reduced quality of service.

Regretfully, the thrust of this sentence is not fully understood. However, the Examiner cites col. 2, line 59 through col. 3, line 15, and the cited passage teaches that the PRMA systems prior to the Jamal disclosure assigned to background noise packet bursts the same priority as to speech packet bursts. It also addresses what Jamal considers a disadvantage of those prior art PRMA systems, where one time slot is allocated every N^{th} frame, because "it would be difficult to find an efficient use for the other N-1 time slots of the channel because other users ma be requesting slots in more than N consecutive frames" (col. 3, lines 12-15).

Respectfully, the cited passage has no relevance to claim 11, which depends on an extended chain of previous claims, and which specifies that the number of blocks of a frame in which time slots are assigned to a channel during the reduced bandwidth time (that number being not less that a certain proportion of the total number of channels in a frame) is related to Quality of Service (QoS) that the station is to maintain. First, there is no notion of QoS in the Jamal reference. Second it is important to note that the claim 1 method does not exclude the notion of having speech transmitted even while the base station believes the mobile station to be in a relative silence period. That is, claim 1 does NOT require the mobile station to be in a silence mode, or even in a relative silence mode. It only requires that the control node make the determination, or ascertainment, that the mobile unit is in a relative silence mode. To make such a determination, the specification teaches performing a test, which inherently involves a comparison to a threshold. The claim does not exclude the possibility that some speech might exist that is below the threshold, which would lead to the conclusion that the mobile station is in a relative silence period, and yet some speech signal is being transmitted. Moreover, ascertainment step (c) of claim 1 also involves a decision, and a test that is performed in the base station that involves a threshold. Good engineering would dictate the selection of two different thresholds so as to create an hysteresis and,

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therefore, claim 1 clearly allows the possibility of perhaps more than a trivial amount of speech being communicated while the control node believes the mobile station to be in a relative silence interval.

Claim 11 affirmatively imputes a speech signal during the relative silence interval by specifying a bandwidth that comports with a prespecified QoS for communicating information (in contrast to background noise). No such notion is present in the Jamal reference.

Claim 12 is believed patentable substantially for the same reasons that applicant believes claim 11 to be patentable.

Regarding claims 14 and 15, the Examiner asserts that Jamal teaches that the freed capacity can be assigned to other mobile stations. Applicant respectfully disagrees. The assignments performed by Jamal is not directed to freed capacity, but to available capacity, and any unassigned time slots -- whether previously assigned but now is freed as part of a bandwidth reduction, or ones that had not been assigned -- are "fair game."

As for the grouping of claims 1-18, the Examiner admits that Jamal does not disclose time slots having a second ordinal potion in a subset of block in a frame, but asserts that Söllner et al teach dividing a frame of timeslots into a set of eight sub-blocks. Applicant respectfully submits that even according to the Examiner, the contribution by Söllner et al is nothing more that converting the frame/time-slots structure of Jamal into the frame/blocks/time-slots structure of applicant's claim 7 (on which claim 8 depends). However, claim 8 does not derive its patentability from this structure and, moreover, amended claim 8 does not mention a "second ordinal position." It does, however, specify that the reduced bandwidth is achieved by assigning a slot to a mobile station is fewer than all of the blocks of a frame; i.e., a slot is assigned in each block of only a subset of the blocks. In the Jamal reference there is no notion of assigning slots to a subset of time slots based on bandwidth. Rather, the notion is to assign slots based on what is requested, provided that capacity is available. This distinction applies to all of the claims in the claim 8-16 grouping.

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In light of the above amendments and remarks, applicant respectfully submits that all of the Examiner's objections and rejections have been overcome. Reconsideration and allowance of the outstanding claims are respectfully solicited.

Respectfully,
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